DOCUMENT RESUME

ED 085 851 EA 005 733

AUTHOR	Hood, Diane M.
TITLE	Independent School Building Projects . State of the Art Recommendations.
INSTITUTION	National Association of Independent Schools, Boston, Mass.
PUB DATE	Nov 73
NOTE	33p.
AVAILABLE FROM	National Association of Independent Schools, 4 Liberty Square, Boston, Massachuetts 02109 ($1.00)
EDRS PRICE	MF-$0.65 HC Not Available from EDRS.
DESCRIPTORS	Construction Costs; *Construction Programs; Contracts; Cost Effectiveness; Educational Specifications; *Evaluation; Facility Guidelines; Planning (Facilities); *Private Schools; Questionnaires; *School Construction; *Systems Approach
IDENTIFIERS	*Design Build

ABSTRACT

A previous report, Independent Schools Building Research Project (December 1972), on the current methods of building independent school facilities is summarized in this booklet. The summary is intended to increase the level of awareness of school administrators who are involved with building programs. Since survey results indicated that the majority of schools utilize the traditional architect, contractor, and client relationship, the traditional method is evaluated here, and it s inadequacies as reported by school administrators are discussed. New techniques developed to overcome the stresses and inadequacies of the traditional procedure are listed. Among these techniques, the design/build method is recommended to best fulfill the objectives for improved building programs in independent schools. The design/build technique is defined, two examples of the technique in operation are provided, a model design/build project for an independent school is suggested, and the advantages and disadvantages of this method are offered. (Author/MLF)

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INDEPENDENT SCHOOL BUILDING PROJECTS

State of the Art

Recommendations

Diane M. Hood

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Printed in U.S.A.

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FOREWORD

Planning and building a school facility involves the time, skill, money, creativity, and diplomacy of many people.

Educational publications, organizations, and spokesmen seem to assume, along with the layman, that the executive officers of a school can easily and successfully administer a building project at the same time they are managing the "routine" business of the school.

Often the leaders of a school become aware of the many internal and external issues involved in a building project only after they embark upon it. Also, more often than not, limited resources and services are available to school administrators as they contemplate and then undertake school building programs.

Knowing from personal experience that current methods of building school facilities leave much to be desired, three people studied the situation: H. Wayne Dickison, a headmaster; Diane M. Hood, an educational consultant; and James Wick, an architect. The Independent School Association of Massachusetts sponsored their research, and Educational Facilities Laboratories funded the project.

In compiling their report, Independent Schools/Building Research Project (December 1972), the three authors collected data through meetings, interviews, visits, questionnaires, and readings. They received information from over 100 independent schools that had recently completed or were in the midst of building projects. They also contacted many professionals in the fields of education, finance, design, and construction.

The National Association of Independent Schools, aware of the vast amount of building being planned or in progress by its member schools, has commissioned me to prepare this summary of the original report and its findings for distribution to the membership.

D.M.H.

I. STATE OF THE ART

A. Planning/Building Procedure Used by Most Independent Schools

Before considering how to improve the building process, it is important to understand how that process is most often carried out as well as some of its limitations.

Today most independent school planning/building programs follow the method that has prevailed in the construction industry for over a century. This method relies heavily upon a framework of procedures and relationships that involve an architect, a contractor, and an owner (the school).

The architect, presumed to be the most knowledgeable party, is expected to be the leader of the building project. He designs the building to the owner's requirements, aesthetically translating the client's program and wishes into a functional design. The architect is also expected to be an expert in matters of construction and costs. During the construction phase, the architect acts in behalf of the owner as his "agent" in administering the basic contract with the contractor. The architect is presumed to be a "professional," being paid a fee for his services, acting in the interest of his client only, and having no financial interest either in the building itself or in the construction process.

The contractor, who does not participate in the planning phase, becomes involved later on, usually after having been selected by competitive bidding. Presumed to be an expert in building procedures, the contractor translates the architect's drawings into a physical product. The contractor, a "business," receives a "profit" from the construction operation.

This architect-contractor-owner relationship and the assumptions that underlie it are defined by basic American Institute of Architects contract documents that still form the legal basis of much construction activity. Since the architect is supposed to control the contractor, this relationship is essentially an adversary one.

The entire planning/building process is sequential, for planning, designing, bidding, and construction follow one another in rigid order. If one of the steps turns out to be wrong, all preceding steps may have to be repeated. This means that, when bids come in too high, the participants may have to start the planning phase all over again. And if there is a delay in any one step of the process, this usually limits or stops progress on other, subsequent tasks.

B. Evaluation of the Traditional Planning/Building Procedure

Traditional procedures worked more smoothly in the days when building programs and construction techniques were simpler than they are today. The architect could more readily comprehend a school's educational program and could take the lead in defining what was needed. While the functional and aesthetic expression of a program is still probably the most important element of a building project, the issues of philosophy, scheduling, finance, legal problems, and agency approvals are now more important and complex than they used to be.

Buildings themselves used to be less sophisticated, with less complicated equipment and systems. The architect could readily understand all the building components and how they worked. And, in those days, the cost of a building depended on the quality and type of materials. Now, because of greatly increased labor costs, overall cost depends much more on how

these materials are combined.

Hence traditional relationships have become strained in the face of trying to accommodate today's problems and circumstances. There is uncertainty about responsibility. There is the impossibility of making accurate estimates during the planning phase. There is the specter of cost overruns. There is the difficulty of obtaining information on which to base and make decisions. Frequent delays, repetition, and duplication of work are commonplace.

For these reasons, new relationships and procedures are beginning to emerge, ones that charge all parties--owner, architect, contractor, lawyer, banker, consultant, and others--with having or acquiring the information and skills needed in the many phases of a building project.

C. Independent Schools Report on Building Projects

Interviews and responses to questionnaires revealed that there are indeed inadequacies in the traditional planning/building procedures. School administrators who had recently completed or were in the midst of building projects eagerly responded to specific and open-ended questions about many aspects of the building programs at their schools. (The questionnaire, which is reproduced in Appendix A, may serve as a useful diagnostic/evaluative tool for readers involved in building programs.)

1. Reasons for Building Projects. Actual or projected increases in enrollment are one major reason for undertaking building programs at schools. An almost equally important reason is obsolete buildings and avoidance of physical-plant problems in past years.

2. The Perils of Inexperience. The leaders (school head, trustees)

of a school's building program are often new to the school as well as to the experience of undertaking a building project. Because they often have no prior experience or preparation (through reading, workshops, etc.), they tend to adopt the "discovery method" of learning, which can result in a great deal of reinventing the wheel.

An independent school building project tends to rely more on "personal" relationships than do projects in other fields, which operate more on contractual professional relationships.

Independent school leaders in building programs know very little about such newer building techniques and procedures as fast tracking, systems building, and construction management. In fact, they are usually unaware of the complexities, conflicts, and inadequacies of the traditional planning/building procedure until these (inevitably) arise.

3. Financing a Building Project. Most independent schools try to finance new buildings through special fund drives, mortgage loans, or a combination of the two.

Many financial experts contend that the money is "out there," that the school only needs the expertise to raise the full amount through a special fund drive. Although some two thirds of the schools responding enlist professional fund raisers, a substantial number report dissatisfaction with services and results. Fund raisers, in turn, express some conflicting and critical views of their independent school clients.

Interviews and questionnaires contained vivid messages from schools that have taken mortgages: "Limit building expenditures to actual cash resources from gifts," and "cash ahead--no borrowing." Given its annual operating expenses, an independent school usually has neither the

flexibility nor the available cash to undertake interest payments on mortgages.

Since financing problems usually arise as a building program proceeds, school administrators advise:

a. Do better long-range planning.

b. Be aware of the long-range implications of cost overruns.

c. Don't assume that, if current operations are in balance, the future will take care of itself through a fund drive, increased tuition, or "a sudden windfall."

New methods of financing building projects, like new methods of building, are either generally unknown or untried by schools. Some other approaches to financing that might be appropriate for an independent school to consider (with legal and financial counsel) are:

a. An interest-free loan in lieu of a capital gift

b. Private investors building a facility and leasing it to the school

c. Bond issues

d. Joint occupancy

e. School-sponsored commercial enterprise(s)

4. Hiring the Professionals. The typical independent school most often selects an architect who has a personal connection with the school, a contractor through competitive bidding, fund raisers (if used) by national reputation, and educational consultants (if used) either by national reputation or by referral from other schools. Firms that provide a combination of these services are not patronized by independent schools.

5. Project Management, Control, and Results. It would be natural to assume that the quality of management of a building project has a

correspondingly favorable or unfavorable effect on the cost and suitability of the result. However, responding school administrators claim that building projects were well planned and managed but report dissatisfaction with the final results. Some schools are disappointed with the quality of a new facility. Others have been frustrated by time delays. About two thirds of the schools complain of cost overruns varying from 3 to 60 per cent over estimated costs, with a median of about 15 per cent.

Three possible explanations of the discrepancy between perceived quality of project management and actual results emerge from the research data:

a. In interviews, school administrators were willing to discuss the conflicts, complexities, and disorganization that occurred during a building program. To admit in writing, on a questionnaire, that "all is not well in the building project at my school" conflicts with the essential, customary public relations position of an independent school head.

b. The usual tendency to involve many people in the logistic and philosophic leadership of an independent school building program can diffuse responsibility to such an extent that project management and control are adversely affected.

c. Many of those interviewed believe that the school should assert itself more strongly during the building program. It should demand better work, bargain harder on prices, and hold the hired professionals more closely accountable.

Following are comments of some headmasters who have had building experience:

-- "Lack of competent supervision while building--cheapest materials used and therefore currently and constantly replacing."

-- "Better review of architects' plans; builders blindly following them; realization of how poor estimates are. On purpose?"

-- "We are starting a new project soon, a library, for about $300,000. Conflicts will be fewer because of a board that is more harmonious and because the architect and builder

have set up better guidelines for working together."

-- "Sorry about lack of information, but those responsible for the buildings are no longer associated with the school."

D. Establishing Objectives for Improved Building Programs

If a school is going to adopt new methods, what should it keep and what should it discard? Whatever new method is chosen should allow a school to attain at least the following objectives:

1. The school should adopt money-saving techniques that will give it more value for its dollar.

2. The school should balance its needs and resources early in the planning process, not after bids come in.

3. The overall process should be kept simple so that the school will not become enmeshed in complicated, counterproductive relationships.

4. Time should be saved where possible and practicable.

5. Whatever process is chosen should be within the reasonable capacity of the school to accomplish.

6. Whatever process is chosen should allow the school to retain control over its image and educational philosophy and allow it to express these in the facilities it builds.

E. New Planning/Building Techniques

New techniques are being developed to overcome the stresses and inadequacies of the traditional planning/building procedure. Most of these techniques have come from the area of commercial construction, where the pressures for efficiency, economy, and speed are intense. Others have come from large-scale public school building projects.

Because of their scale and outlook, some of the techniques that were investigated are not suitable for the typical independent school. The approaches that were explored in preparing this report are (1) "systems"

construction, (2) prefabrication, (3) developer on the account of a client, (4) fast tracking, (5) construction management, (6) packagers, (7) CPM and PERT, and (8) design/build.

All of the above techniques have certain elements in common.

1. They have all been developed to save time and money.

2. Planning and construction are regarded as a single, integrated process, thereby reducing the number of separate operations.

3. The number of communication lines has been reduced, with some people being eliminated from the process and others brought under the control of other key people.

4. The total process is governed by central management and tight overall project scheduling.

5. Cost and functional criteria exert major control over design, thus reducing the importance of architectural and aesthetic considerations.

6. Accurate cost data are brought into the planning process at a very early stage.

II. DESIGN/BUILD: THE RECOMMENDED TECHNIQUE

The technique known as "design/build" seems best to fulfill the objectives for improved building programs in independent schools.

A. General Description

Design/build is a method whereby the owner contracts with a single company to obtain both architectural and construction services--a fundamental departure from the traditional method, where architect and contractor are separate parties. Sometimes design/build teams are put together on an ad hoc basis, with an independent architect and a contractor making a proposal for a particular project.

The design/build firms now in existence have evolved from successful construction companies that have added the design operation essentially as a marketing device. The first design/build companies produced industrial and commercial buildings of a standard type, such as warehouses and parking garages.

Realizing that the technique is suitable for more complicated buildings, design/build firms have begun to extend the scope and depth of their services to such complex buildings as hospitals, medical centers, and schools.

B. Examples of Design/Build Projects

The following descriptions of two examples show how a design/build project operates. These two projects have been chosen because in each case the user's requirements were complex.

1. Hubbard Regional Hospital, Webster, Massachusetts. The design/

build firm was asked to submit a proposal after a conventional architect who specialized in hospitals had made several complete schemes. The trouble with his schemes was that they would have cost 50 to 100 per cent more than the hospital could afford. The design/build firm made a few schemes, working with a very general program--for example, number and type of beds. Support space was put in as needed. The cost of the final design was $1-million, about half the cost of the architect-designed scheme for the same space. A large part of the work consisted of remodeling and refurnishing existing quarters. The completed building is plain but cheerful, well constructed, and serviceable. In this case, the hospital administration found it necessary to keep close watch on the actual construction process in order to obtain first-class workmanship.

2. Learning-Living Center, University of Vermont. This project, recently completed, consists of a large complex of living and instructional spaces, with numerous specialized facilities, worth over $5-million. In this case, an elaborate effort was made to define a program. An architect was hired, and information was obtained from all sections of the university community. The final program was hundreds of pages long, spelling out in detail the requirements for each room. Three large design/build firms submitted proposals that were evaluated in a rigorous and systematic manner. In general, the client organized himself very well, and this undoubtedly contributed to the overall success of the project.

C. A Model Design/Build Project for an Independent School

1. Ascertaining the School's Ability to Undertake Design/Build. Before even considering design/build, the school should undergo a complete, internally generated self-examination and evaluation of the entire school

at all levels. Not only should this include philosophic questions--why the school exists and whether it can continue to do so--but, more important, the pragmatic questions of how things get done and who makes decisions. Design/build will work only if the school can generate the necessary data at the proper time.

Many schools tend to think that, because they have recently had an evaluation or outside consultation, they are ready to consider design/build. Unfortunately, many self-analysis and evaluation procedures merely confirm to the school that it is doing what it says it is doing. By no means do they indicate that the school is capable of operating within the tight requirements of design/build. (The New England Association of Schools and Colleges has developed a Manual for School Evaluation that forces the school into the type of intensive self-analysis that is required before undertaking a design/build project.)

In order to ascertain whether any given self-analysis process has readied the school for design/build, the following guidelines might be helpful.

a. Has everyone been involved in the process--faculty, parents, students, alumni, board?

b. Does everyone agree on the findings of the self-study?

c. Is the administration able to make consistently satisfactory decisions within a specified period of time?

2. Preparing the Educational Specifications. Having gone through a thorough self-evaluation process and determined that it has the ability and interest to undertake a design/build project, the school should generate "ed specs" in the form of a written document from which design/build firms can produce definite proposals.

In some cases, design/build program documents are quite elaborate; however, the requirements for a typical independent school project can be thoroughly explained in about 50 pages, if the document is well written. The document describes the school's educational objectives, its approximate resources, and the number and kind of spaces it wants.

In describing space needs, an environmental approach--stating needs in terms of the prime user, the student--is recommended. The emotional and physical needs of the student must be translated into "space" and the "space" then be translated into materials and components. Decisions must be made very clear, and data must be sought at all levels.

Who handles these "space translations" is a matter of some concern. School personnel could handle the entire process, but it is entirely possible that the services of an architect could prove useful at this point, especially in technical areas. It is essential, however, that this professional--whether parent, volunteer, or one hired specifically for the purpose--fully understand that he is not there to design the building, but simply to translate space needs.

3. Obtaining Proposals. The first step in obtaining proposals is to send a letter to all the design/build firms that the school can find. This letter should briefly describe the scope of the intended project and the approximate amount of money the school plans to spend on it.

The school should investigate those firms that show initial interest. Some may be eliminated on the basis of poor references, questionable financial condition, or unsatisfactory performance.

Three or four interested firms will eventually be invited to make proposals. Since it costs a firm money to make a proposal for which it

has, as yet, no guarantee of a return for its efforts, it will naturally make as small an effort as possible at this stage. (A firm would prefer no competition, but it will undertake a proposal when other firms are involved.)

A firm may be willing to risk $5,000-$10,000 to make a proposal for a project of the size a typical independent school might undertake. However, it may be necessary to "sweeten the pot" in order to attract enough good design/build firms to submit proposals. One way to do this is to pay each firm about $5,000 upon receipt of a proposal that meets the requirements of the school's program. The school can thus obtain several high-quality, low-priced designs for less than it would cost to pay an architect to develop a plan and prepare drawings for bidding. Paying for proposals also shows the bidders that the school is serious about the project. This payment does not cover the whole cost to the bidder, but it does allow him to make further efforts at no additional risk.

The educational-specifications document is released to each of the competing firms and a definite schedule for submitting proposals is set up. Each design/build firm starts work. A design is begun, and the various aspects of it are discussed internally between the design and construction divisions of the firm. Initial designs are reviewed by the construction people for practicality and economy and are revised as needed.

The design/build firm may have time to prepare several basic, overall schemes, a few elevations, one or two site plans, and a couple of structural and mechanical systems. Since it does not have time for detailed study of the client's philosophy or his particular requirements for atmosphere, image, and aesthetics, an adequate statement of these should

appear in the educational-specifications document.

The school should then schedule a review period with each bidder in which first efforts will be informally evaluated. If a particular bidder seems to be on the wrong track, he can be set right.

Each firm then submits a formal proposal that includes a complete set of preliminary designs, specifications detailed enough to define the scope of the work, a time schedule, and one inclusive price for the design and construction of the project.

4. Evaluation of Proposals. It is imperative that evaluation criteria be set up before design/build proposals are sought and that bidders be made aware of these criteria.

If the school is capable of making a thoroughgoing self-evaluation, it should also be able to establish its own criteria for evaluating design/build proposals. Professional help may be needed in some technical areas, but the people who eventually use or pay for the facility should be the ones primarily involved.

It is very important to know that the evaluation period is not the right time to raise fundamental issues about the goals of the school, as expressed in the designs received. Goals should have been defined earlier, in the educational-specifications document. Design/build companies are not willing to "go around" more than once.

5. Award of Contract and Beginning of Construction. After the successful bidder is selected, a letter of intent to enter into a construction contract is issued, subject to certain conditions:

a. Completion of drawings that conform to the proposal

b. Redesign of certain (minor) undesirable features in the proposed design, with reasonable adjustments of price

c. Final design of certain specialized areas, such as laboratories, with reasonable adjustment of price

d. Approval of plans by lending institutions, legal authorities, and so forth

e. Approval of form of contract

Generally, minor adjustments to the design are made and attendant legal and procedural questions are settled before the final award of contract.

Once the letter of intent is signed, the design/build company produces working drawings for construction. These drawings need not be as complete as those submitted in the traditional bidding procedure. They are intended only to tell the workmen in the field what to do, and to make it possible to obtain building permits and financing (if necessary). When working drawings are complete, construction begins. Some operations are even started when working drawings are only partially completed.

Checking the construction is done by the clerk-of-the-works, who is a representative of the owner. The school's director of development, the business manager, or a member of the faculty can act as overall manager of the project. The possibility of a talented parent volunteer or a trustee should not be overlooked by smaller schools.

D. Advantages and Disadvantages of the Design/Build Method

Having one firm do both design and construction provides concentration of responsibility and unique ability to control costs. These advantages are most evident when the design/build approach is compared with the bidding phase of the traditional method of building.

Bidding, an elaborate and cumbersome procedure, is intended to ensure that contractors are selected impartially--that is, that they are all quoting costs on exactly the same thing. Therefore, the architect has to show every aspect of the design in many detailed drawings. The information given on a set of bid documents is usually more than sufficient for quoting an accurate price and building a building.

Any good contractor can make a quite accurate estimate on a building from preliminary drawings, if those drawings are made by someone within his own organization, as is the case of design/build firms. A contractor cannot make binding estimates on preliminary drawings made by "outside" architects because he cannot be sure that the architect will not come along and claim that something else was implied by the drawings, as is often the case in the traditional planning/building procedure.

Paradoxically, while the traditional bidding process is supposed to result in "accuracy," it does not give "control" of costs. Accurate cost data are available only when bids come in--when it is too late to make creative adjustments to the design. The design/build team, however, can continually revise the design to bring the cost down to the budget ("If this building is going to cost $X,000, we will have to use wood instead of brick and take that jog out of the wall.") The independent architect is also often concerned with these questions, but he simply does not have the information and the ability that the design/build firm has to make sure that the project will stay within the budget.

Because a design/build company has evolved what amounts to a building system, it can not only control costs but often give better value for each dollar spent. This is not a system in the prefabrication sense; rather,

it is a systematic way of doing things.

A design/build firm gradually develops a standard way of constructing a building that it can use for a school, warehouse, office building, or store. A reliable firm will always use first-quality materials.

Normally, a contractor has to put up what is shown on the drawings whether the parts are really suited to one another or not. The architect is not ordinarily in a position to know which combinations of parts are economical. A contractor does know, however, and if he is in a position to control the design, he will select combinations that save money. Thus, he can both reduce the cost to the customer and clear a bigger profit.

Design/build firms develop relationships with subcontractors and suppliers who will also lower costs. If a subcontractor does the same kind of work in a standard way for a steady customer, overhead and marketing expenses will be reduced, and he can quote lower prices. If a contractor uses the same materials in building after building, he can buy in quantity at a lower price and stockpile as needed.

All in all, it appears that the design/build company can deliver the space required at savings of 25-50 per cent over conventional methods. Part of this saving comes from economical design and part from somewhat lower aesthetic and materials standards.

An architect will normally establish an "architectural concept" for a project and try to carry it out by making special effects, unique spaces, or special materials and details. Quite often these features cost a great deal to execute, in part because the costs are not known in the initial planning stage.

A design/build firm proceeds from a different orientation, with economy

and simplicity as primary objectives. While many handsome buildings have been built by design/build companies, it is fair to say that they tend to have a certain "routine" aesthetic quality. Some people might consider this a disadvantage.

With the design/build technique, there are none of the extras that so often plague construction efforts. Naturally, if the owner wants to add something extra to the scope of the work, he will have to pay for it, but the addition that comes up because someone forgot something does not occur. (In traditional procedures, both contractor and architect try to disclaim responsibility for omissions--"It wasn't shown on the drawings." "It was implied by the drawings." And the owner ends up paying for it.)

The design/build contractor, on the other hand, is clearly responsible for omissions. If a certain item is obviously needed to complete the job, it has to be provided. If something doesn't work, there's no argument about poor design or poor workmanship--either way, it is the design/build firm's responsibility to replace or correct it.

Perhaps the greatest disadvantage of the design/build method is the possibility of malfeasance, since the architect and the contractor no longer act as checks upon each other. Therefore, the school should (1) thoroughly investigate a design/build firm before signing a contract, and (2) engage an independent, competent clerk-of-the-works for the duration of the construction phase.

III. CONCLUSION

This summary is intended to increase the level of awareness of school administrators who are involved with building programs. Because it is only a preliminary source of information, readers are urged to take time to:

1. Learn more about the design/build business
2. Investigate other new building techniques
3. Explore new ways of financing building projects
4. Consult with others who have recently been involved in building projects
5. Interview professionals
6. Ready the school community for the undertaking

Although this pamphlet describes and recommends the design/build method, it does not suggest that design/build is the only technique to be used by all independent schools that seek to improve their building programs. Design/build simply seems to have greater potential for and applicability to independent schools than do some of the other, newer building procedures.

While design/build techniques are relatively new to the independent school domain, they are sound procedures that have been used in many other areas of the building field.

Why haven't independent schools availed themselves of these newer techniques? Perhaps because information has not found its way to school administrators. Perhaps because schools hesitate to introduce new building

and financing ideas to their constituents. Perhaps because schools are so caught up in moving ahead "philosophically" that they have overlooked the need to keep pace with the newer technology of the construction industry. Or perhaps because innovation requires a certain amount of risk-taking--schools are not willing to gamble images, resources, or both to achieve the goal of a quality facility that is finished on time, is within budget, and meets the expectations and needs of the community.

Any independent school that wants to try newer planning and building techniques has a very good chance of acquiring research and development funds to launch an innovative school building project. With better organization and use of newer techniques, all schools can enjoy, rather than endure, a building program.

INDEPENDENT SCHOOLS / BUILDING RESEARCH PROJECT
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APPENDIX A. QUESTIONNAIRE

I. General Background Information

A. Type of School _____ Enrollment _____

B. Have you recently completed a building? Yes ____ No ____
If yes, date completed _____

C. Are you currently in a building program? Yes ____ No ____

D. Do you intend to build in the near future? Yes ____ No ____

E. Historically, how often does the school engage in a major building program? _____

F. Check if you or your consultants ever used any of the following techniques in your last or current building project.

____ construction management
____ "fast tracking"
____ prefabrication
____ market agregation
____ design-build teams
____ turnkey developers
____ CPM or PERT
____ systems components
____ pre-bid qualification
____ two stage bidding
____ performance specification
____ "squatters"

II. Financing the Building Project

A. The major source of funding was

____ 1. from endowment
____ 2. special fund drive
____ 3. borrowed
(What type of borrowing and from what type of institution.)

_____

_____

____ 4. other _____

_____

If you have checked more than 1 of the above, indicate approximate % or $ of each and the reasons for using combined sources.

_____

_____

B. Were a limited number of givers responsible for a large percentage of the funds?
Yes ____ No ____

C. Was the school given professional services (e.g., architect, engineer, etc.) in lieu of funds?
Yes ____ No ____

D. Was the school given real estate in lieu of funds?
Yes ____ No ____
If yes, was this real estate
____ 1. an integral part of the project
____ 2. sold for additional funds
____ 3. rented for additional funds
____ 4. other _____

E. Were professional fund raisers employed?
Yes ____ No ____
If yes,
1. Were you satisfied with their services? Yes ____ No ____
2. Why did you employ them? _____

_____

F. Were the fiscal aspects of this project incorporated in a long range plan for the school?
Yes ____ No ____

G. Was (Is) the overall financial impact of this project in line with predictions?
Yes ____ No ____
If no, more ____ less ____

H. Would the school finance more building in the same manner?
Yes ____ No ____
If no, what alternative might be considered? _____

_____

III. Project Conception

A. Did recommendations of a long range study bring about the decision to build?
Yes ____ No ____
If yes, did the study indicate need for change in the school's

____ 1. image
____ 2. philosophy
____ 3. enrollment
____ 4. course offerings
____ 5. other _____

B. Did immediate needs bring about the decision to build?
Yes ____ No ____
If yes, were these needs due to

____ 1. obsolescence of buildings
____ 2. enrollment increase
____ 3. sudden windfall (e.g., cash, land)
____ 4. change of administration
____ 5. avoidance of developing needs over past years
____ 6. other _____

C. Prior to "official sanction," who really had the idea to build?

____ 1. head
____ 2. board
____ 3. corporation
____ 4. other _____

D. Following the decision to build, what steps were taken? Indicate by crossing out the following that do not apply and adding others. Then, number the steps to show the order in which they were taken.

____ formation of building committee

____ hiring of educational consultant

____ financial analysis

____ preparation of educational requirements

____ hiring of fund raiser

____ hiring of architect

____ preparation of sketches

____ start fund raising

____ selection of site

____ construction drawings

____ bidding of job

____ selection of contractor

____ start of construction

_____

_____

_____

E. How were professionals selected? Put architect, ed. consultant, fund raiser and contractor on the appropriate line.

_____ competitive bidding

_____ personal connection with school

_____ national reputation

_____ local reputation

_____ referral from other school

_____ recommendation of one of the other "professionals"

_____ other _____

F. Did any single firm provide more than one of these professional services?

Yes ____ No ____

If yes, which services?

_____

_____

IV. Project Management and Control

A. From your experience would you characterize the overall building process, from initial planning to building occupancy, as being well organized?

Yes ____ No ____

B. Indicate which of the following four paragraphs best describes the patterns of leadership experienced in your project. Leadership here means philosophical leadership, i.e., where the main conceptual ideas for the project came from.

____ 1. General lack of leadership--failure of any individual or group to give clear direction to project.

____ 2. Conflicting leadership--different individuals or groups working at cross purposes. Inefficient resolution of conflicting ideas.

____ 3. Shared leadership--various individuals or groups providing leadership within areas of their own expertise. Generally efficient resolution of conflicts.
Who shared this leadership? _____

____ 4. Central leadership--leadership coming generally from one individual or group. Who? _____

C. Which of the above four paragraphs best describes leadership patterns in terms of logistical leadership, i.e., scheduling of tasks, coordination of activities, expediting communication, etc. _____

D. Were/are philosophical differences a major impediment to the efficient solution of your problem? Yes ____ No ____

E. Were/are logistical inefficiencies a major difficulty?
Yes ____ No ____

F. Was the total building process, including the various duties and responsibilities of all the participants, from beginning to end of the project, well understood in the early stages of the project? Yes ____ No ____

G. Was an overall time schedule showing the sequence and duration of major events prepared at the beginning of the project?
Yes ____ No ____
If yes, did it prove to be accurate? Yes ____ No ____
Did it prove to be comprehensive? Yes ____ No ____
Who prepared it? _____

H. Did any of your professional participants (educational consultant, architect, contractor, fund raiser) tend to cooperate closely and actively? Yes ____ No ____
Which ones? _____

V. Project Results

A. Is the school generally satisfied with the new facility?
Yes ____ No ____
If no, why not? _____

_____

B. By what percentage (if any) did your estimated and actual costs differ? _____

C. Were there any significant expenditures (e.g., 1/2 of 1% of actual cost) incurred in the project after acceptance of the building from the contractor.
Yes ____ No ____
If yes, explain.

_____

_____

_____

D. Were any penalty clauses or negative sanctions of any of the project contracts used?

Yes ____ No ____

If yes, did any litigation result?

Yes ____ No ____

Were any reward clauses of any of the project contracts used?

Yes ____ No ____

E. Was it necessary to cut back on any aspect of the originally conceived project?

Yes ____ No ____

F. Was the facility completed on schedule?

Yes ____ No ____

G. Would the school follow the same building process for future projects?

Yes ____ No ____

VI. Other Comments

_____

_____

_____

_____

APPENDIX B. BIBLIOGRAPHY

Articles and Pamphlets

Of the numerous educational journals and organizations, only a few produce materials that are relevant to an independent school that is considering a building program. The following selections are general readings to increase awareness about building projects. They are not specifically about the design/build concept.

1. American School and University is a monthly journal published by the North American Publishing Company in Philadelphia. It often carries articles on school building. Of particular interest are the following articles:

   "Planned Programming for Many Needs" -- April 1970

   "Building Ideas That Save Money" -- February 1971

   "How to Help and Hinder Your Architect" -- March 1971

   "Feedback from Building Users" -- August 1971

   "Before You Call an Architect" -- May 1972

   "Recycling Egg Crate Space -- June 1972

2. The Council of Educational Facilities Planners in Columbus, Ohio, produces books, annual reports, and a monthly journal. Recommended selections from the CEFP Journal are:

   "Accountability" -- March/April 1972

   "Cutting Hidden Costs" -- March/April 1972

   "New Ways of Financing" -- May/June 1972

3. Educational Facilities Laboratories, 477 Madison Avenue, New York, New York 10022, has available, at nominal cost, many attractive and valuable booklets on school building. Especially pertinent are:

   "Educational Change and Architectural Consequences"

   "Joint Occupancy: Profiles of Significant Schools"

"Schools: More Space/Less Money"

"Systems: An Approach to School Construction"

EFL has a branch office on the West Coast that specializes in "systems" building. Newsletters and other publications on "systems" are available from that office: Building Systems Clearinghouse, Menlo Park, California 94025.

4. NAIS publications of relevance to school building projects are:

   A Guide to Long-Range Planning

   The Independent School Trustee

5. An architectural journal that often features schools is Progressive Architecture, put out by the Reinhold Publishing Corporation, in Stamford, Connecticut. Significant selections are:

   "Assault on the Schoolhouse" -- April 1968

   "Who Is the New Professional?" -- November 1969

   "Beating the Systems Game" -- March 1970

   "The Architect in the Business of Developing" -- May 1970

6. The AIA Journal, published monthly by the American Institute of Architects, in Washington, D.C., often features articles on schools. Highly recommended is:

   "Expressing Educational Requirements" -- July 1967

Books

Castaldi, Benjamin, Creative Planning of Educational Facilities (Arlington, Va.: College Readings, Inc., 1972).

Council of Educational Facilities Planners, Guide for Planning Educational Facilities (Columbus, Ohio: CEFP, 1969).

Engelhardt, Nickolaus L., Complete Guide for Planning New Schools (West Nyack, N.Y.: Parker Publishing Co., Inc., 1970).

New England Association of Schools and Colleges, Manual for School Evaluation (Burlington, Mass.: NEASC, 1972).